

# **EXHIBIT R**

# EXHIBIT 14

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

**U.S. Patent No. 11,381,866 (the “’866 Patent”) Exemplary Infringement Chart**

Cox operates and maintains a nationwide television and data network through which it sells, leases, and offers for sale products and services, including the Technicolor CGM4981, Technicolor CGM4331, Technicolor CGM4141, Technicolor CVA4004, ARRIS / Surfboard TM3402, ARRIS / Surfboard G36, ARRIS / Surfboard G54, ARRIS / Surfboard S33, ARRIS / Surfboard CM8200, ARRIS / Surfboard G34, ARRIS / Surfboard SB8200, ARRIS / Surfboard DG2460, ARRIS TM9202, Hitron CODA56, Hitron CODA, Humax HGD310, Motorola B12, Motorola MB8611, Motorola MG8725, Motorola MB8600, Motorola MG8702, Netgear CM2000, Netgear C7800, Netgear CAX30, Netgear CAX80, Netgear CBR750, Netgear CM1000, Netgear CM1000v2, Netgear CM1100, Netgear CM1200, Netgear CM2500, Netgear CM3000, Ubiquiti UCI, ARRIS / Surfboard TG2472, ARRIS / Surfboard SBG7400AC2, ARRIS / Surfboard SBG7600AC2, Motorola MB7621, Motorola MG7700, Netgear C6900, Netgear C7000v2, Netgear C7500, Netgear CBR40, Netgear CM600, Netgear CM700, TP-LINK TC-7650, ARRIS / Surfboard SB6183, ARRIS / Surfboard SBG6900, Asus CM16, Motorola MB7420, Motorola MG7540, Motorola MG7550, Netgear C6230, Netgear C6250, Netgear C6300, Netgear C6300v2, Netgear CM500, TP-LINK TC-7620, TP-LINK CR500, TP-LINK CR700, TP-LINK CR1900, SMC D3CM1604, Zoom 5370, and products that operate in a similar manner (“Accused Cable Modem Products”), as well as the Arris AX013ANC STB, Arris AX013ANM STB, Pace PX022ANC STB, Pace PX022ANM STB, Samsung SX022ANC STB, Samsung SX022ANM STB, and products that operate in a similar manner (“Accused Set Top Products”). Cox provides cable television and internet services (“Accused Services”) via the lease, sale, and/or distribution of the Accused Cable Modem Products and/or the Accused Set Top Products. Cox literally and/or under the doctrine of equivalents infringes the claims of the ’866 Patent by making, using, selling, offering for sale, and/or importing the Accused Services, Accused Cable Modem Products, and/or the Accused Set Top Products.

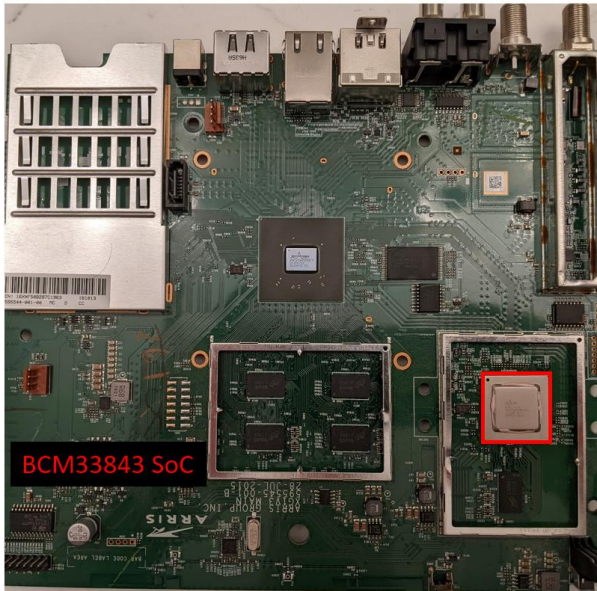
As shown below in the chart with exemplary support, the Accused Services infringe at least claims 27, 28, 33, 36, 37, 41, 42, 47, 50, and 51 of U.S. Patent No. 11,381,866 (“’866 Patent”). The ’866 Patent was filed January 28, 2022, issued July 5, 2022, and is entitled “Cable Television Device.” The ’866 Patent claims priority to U.S. Patent Application Serial No. 17/217,244, filed on Mar. 30, 2021; U.S. Patent Application Serial No. 16/430,506, filed on Jun. 4, 2019; U.S. Patent Application Serial No. 15/792,318, filed Oct. 24, 2017; U.S. Patent Application Serial No. 14/948,881, filed Nov. 23, 2015, U.S. Patent Application Serial No. 14/617,973, filed on Feb. 10, 2015; U.S. Patent Application Serial No. 13/962,871, filed on August 8, 2013; U.S. Patent Application Serial No. 12/762,900, filed on April 19, 2010; and U.S. Provisional Patent Application No. 61/170,526, filed April 17, 2009.

The Accused Services utilize the claimed device, for example, the Accused Set Top Products. The Accused Set Top Products infringe the claims of the ’866 Patent, as described below, either directly under 35 U.S.C. § 271(a), or indirectly under 35 U.S.C. §§ 271(b)–(c).

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
<b>27pre</b>	27. A cable television (TV) device comprising:	<p>The Accused Services utilize the claimed cable TV device by using, for example, the Accused Set Top Products, which include at least one set top box (“STB”) located at each sub-scriber location, including, for example, the Arris AX013ANC STB, Arris AX013ANM STB, Pace PX022ANC STB, Pace PX022ANM STB, Samsung SX022ANC STB, Samsung SX022ANM STB, and products that operate in a similar manner.</p> <p>By way of example, the Arris AX013ANM is charted herein. As described below, the Arris AX013ANM has a Broadcom BCM33843 SoC. On informed belief, the Arris AX013ANM is representative of all Accused Set Top Products, including those having BCM3383, BCM3384, BCM33843, or BCM3390 SoCs.</p>
<b>27a</b>	a wideband analog-to-digital converter (ADC) configured to digitize a contiguous band of frequencies in an input signal, wherein the contiguous band of frequencies comprises a plurality of desired channels and a plurality of undesired channels;	<p>The Accused Set Top Products include a wideband analog-to-digital converter (ADC) configured to digitize a contiguous band of frequencies in an input signal, wherein the contiguous band of frequencies comprises a plurality of desired channels and a plurality of undesired channels as described below.</p> <p>Specifically, the Arris AX013ANM, depicted in the following annotated photograph, constitutes a cable television device as claimed.</p>

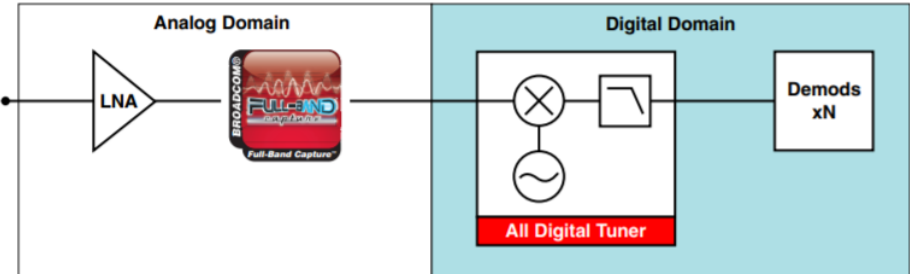
*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<div data-bbox="726 250 1318 837"></div> <p data-bbox="726 889 1942 1214">The Arris AX013ANM has applicable circuitry and/or software modules constituting a wide-band ADC. The Arris AX013ANM digitally tunes and outputs television content using its applicable circuitry and/or software modules, for example applicable circuitry and/or software modules located in the Broadcom BCM33843 Full-Band Capture SoC, highlighted in red above. The Arris AX013ANM has full band capture digital tuning technology and remote diagnostics that directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. The entire downstream spectrum includes a plurality of desired channels and a plurality of undesired channels.</p> <p data-bbox="726 1266 1942 1382">“The new BCM3384 DOCSIS®/Euro-DOCSIS™ 3.0 cable gateway SoC combines Broadcom's Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a custom, dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0. ...</p>






*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>Broadcom’s new BCM33843 is pin compatible ... Broadcom is now sampling [as of Jan 08, 2013] the BCM3384 and BCM33843” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
<b>27b</b>	<p>a digital frontend (DFE) coupled to the wideband ADC, wherein the DFE is configured to concurrently select and provide each of the plurality of desired channels without providing any of the plurality of undesired channels, and wherein the cable TV device comprises a digital video recorder (DVR).</p>	<p>The Accused Set Top Products include a digital frontend (DFE) coupled to the wideband ADC, wherein the DFE is configured to concurrently select and provide each of the plurality of desired channels without providing any of the plurality of undesired channels, and wherein the cable TV device comprises a digital video recorder (DVR) as described below.</p> <p>Specifically, the Arris AX013ANM has applicable circuitry and/or software modules constituting a digital frontend that concurrently selects and provides each of the plurality of desired channels without providing any of the plurality of undesired channels. The Arris AX013ANM has applicable circuitry and/or software modules, for example including applicable circuitry and/or software modules located in the BCM33843 SoC, constituting a digital frontend and providing full band capture digital tuning technology that directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. The Arris AX013ANM is a DVR that can record programming on its hard drive.</p>

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

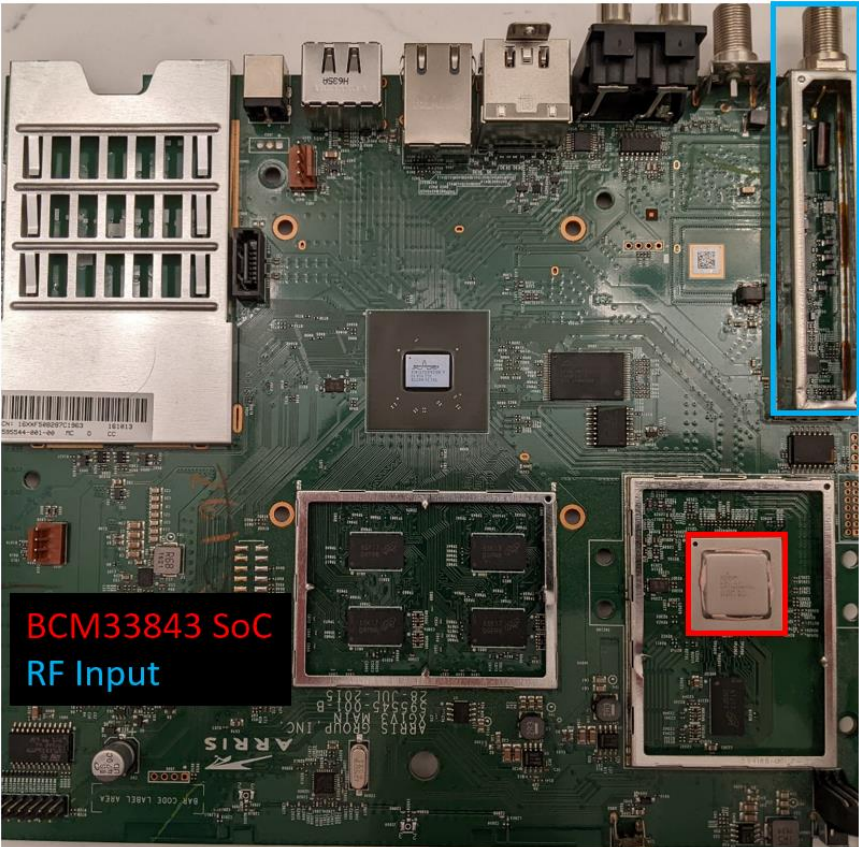
#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p data-bbox="758 285 1367 313"><b>Full-Band Capture Digital Tuner Architecture</b></p>  <p data-bbox="726 613 1488 646">(ENTROPIC_COX_002010 at ENTROPIC_COX_002012)</p> <p data-bbox="726 699 1942 894">“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.”</p> <p data-bbox="726 911 1488 943">(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p data-bbox="726 997 1942 1154">“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned and users can enjoy the experience of Broadcom's FastRTV™ fast channel change technology.”</p> <p data-bbox="726 1162 1488 1195">(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p>

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

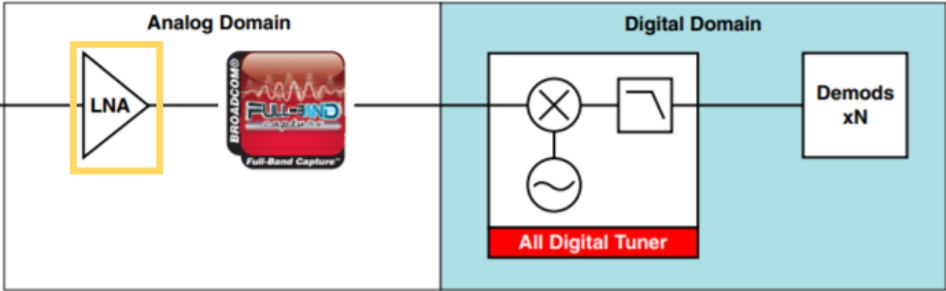
#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p>  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> <li>✓ HD Capable</li> <li>✓ Up to 6 simultaneous DVR recordings</li> <li>✓ Up to 1000 hours of SD recording</li> <li>✓ Up to 500 hours of HD recording</li> </ul> <p><b>Note:</b> Estimated storage will vary with a mix of HD and SD recordings.</p> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
<b>28pre</b>	28. The cable TV device of claim 27, wherein:	See 27pre.
<b>28a</b>	the cable TV device comprises a cable network connector, and	The cable TV device comprises a cable network connector as described below.



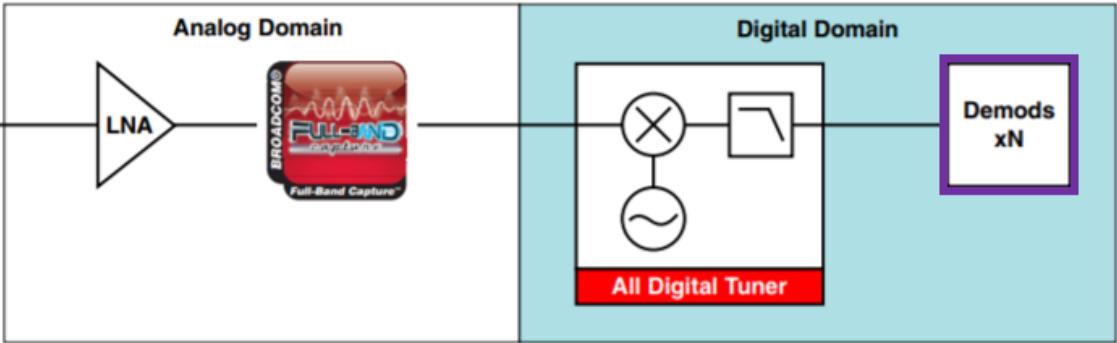
*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>Specifically, the Arris AX013ANM has a cable network connector, shown in blue in the following annotated photograph.</p>  <p>BCM33843 SoC RF Input</p>
28b	the input signal is operably communicated from the cable network connector to the wideband ADC	The input signal is operably communicated from the cable network connector to the wideband ADC via at least one of an analog amplifier and an analog filter as described below.

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
	via at least one of an analog amplifier and an analog filter.	<p>Specifically, the Arris AX013ANM has applicable circuitry and/or software modules constituting at least an analog amplifier. For example, the Arris AX013ANM, via applicable circuitry and/or software modules of its BCM33843 SoC, has at least an analog amplifier, highlighted in yellow below.</p> <p style="text-align: center;"><b>Full-Band Capture Digital Tuner Architecture</b></p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
33pre	33. The cable TV device of claim 27, wherein:	See 27pre.
33a	the DFE comprises a plurality of digital demodulators, and	<p>The DFE comprises a plurality of digital demodulators as described below.</p> <p>Specifically, the Arris AX013ANM has applicable circuitry and/or software modules constituting a plurality of demodulators. For example, the Arris AX013ANM, via applicable circuitry</p>

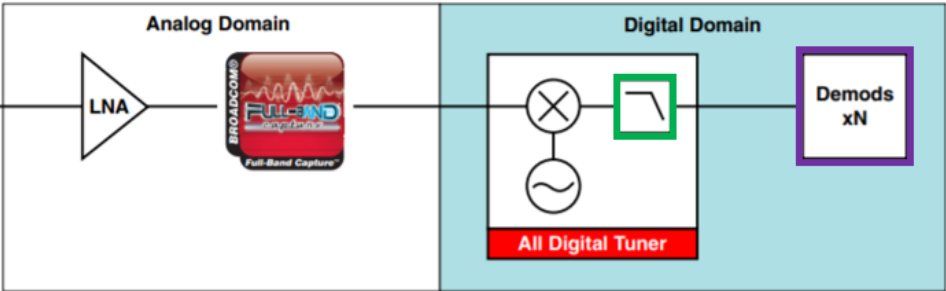
*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>and/or software modules of its BCM33843 SoC, has a plurality of demodulators, highlighted in purple below.</p> <p><b>Full-Band Capture Digital Tuner Architecture</b></p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
33b	each digital demodulator, of the plurality of digital demodulators, is operable to demodulate a desired channel, of the plurality of desired channels.	<p>Each digital demodulator, of the plurality of digital demodulators, is operable to demodulate a desired channel, of the plurality of desired channels as described below.</p> <p>Specifically, the Arris AX013ANM has applicable circuitry and/or software modules constituting a plurality of demodulators. For example, the Arris AX013ANM, via applicable circuitry and/or software modules of its BCM33843 SoC, has a plurality of demodulators, highlighted in purple below. The demodulators demodulate the desired channels.</p>






*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned and users can enjoy the experience of Broadcom's FastRTV™ fast channel change technology.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
36	36. The cable TV device of claim 27, wherein: the DFE is operable to provide the plurality of desired channels via a serial interface.	<p>The DFE is operable to provide the plurality of desired channels via a serial interface as described below.</p> <p>More specifically, the Arris AX013ANM, using its applicable circuitry and/or software modules, outputs the digital datastream from a filter to one or more demodulators. On informed belief, the digital datastream is output via a serial interface. For example and on informed belief, the Arris AX013ANM, using applicable circuitry and/or software modules contained in the BCM33843 Full-Band Capture SoC, outputs the digital datastream from the filter (highlighted below in green) to the demodulators (highlighted below in purple) via a serial interface.</p>

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p data-bbox="785 302 1430 329"><b>Full-Band Capture Digital Tuner Architecture</b></p>  <p data-bbox="726 646 1629 678">(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p data-bbox="726 732 1944 889">Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
37	37. The cable TV device of claim 27, wherein: the plurality of desired channels comprises at least one cable broadcast channel.	<p data-bbox="726 948 1944 1019">The plurality of desired channels comprises at least one cable broadcast channel as described below.</p> <p data-bbox="726 1073 1944 1190">Specifically, the Arris AX013ANM provides cable television services, including viewing and recording of desired television content. The plurality of desired channels includes at least this desired television content, which constitutes at least one cable broadcast channel.</p> <p data-bbox="726 1243 1944 1360">“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive</p>

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

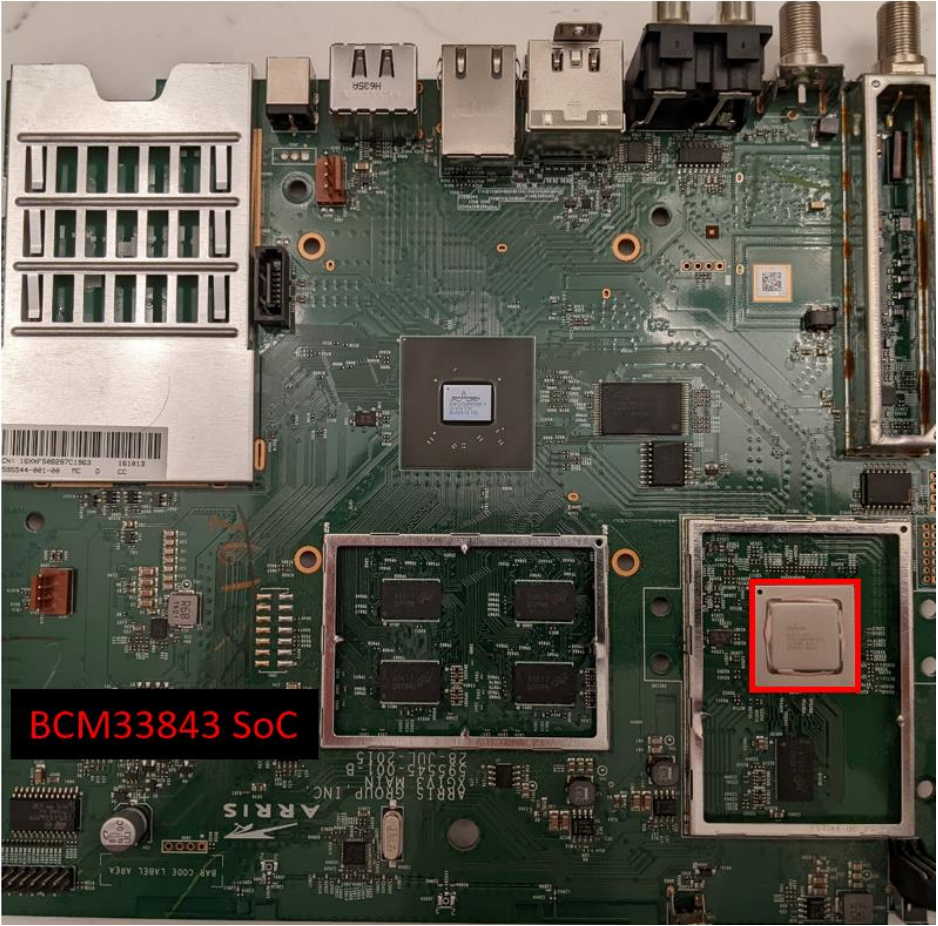
#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned and users can enjoy the experience of Broadcom's FastRTV™ fast channel change technology.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>   </p> <p>Details</p>  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> <li>✓ HD Capable</li> <li>✓ Up to 6 simultaneous DVR recordings</li> <li>✓ Up to 1000 hours of SD recording</li> <li>✓ Up to 500 hours of HD recording</li> </ul> <p><b>Note:</b> Estimated storage will vary with a mix of HD and SD recordings.</p> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p>

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
<b>41pre</b>	41. A cable TV device comprising:	<p>The Accused Services utilize the claimed cable TV device by using, for example, the Accused Set Top Products, which include at least one set top box (“STB”) located at each subscriber location, including, for example, the Arris AX013ANC STB, Arris AX013ANM STB, Pace PX022ANC STB, Pace PX022ANM STB, Samsung SX022ANC STB, Samsung SX022ANM STB, and products that operate in a similar manner.</p> <p>By way of example, the Arris AX013ANM is charted herein. As described below, the Arris AX013ANM has a Broadcom BCM33843 SoC. On informed belief, the Arris AX013ANM is representative of all Accused Set Top Products, including those having BCM3383, BCM3384, BCM33843, or BCM3390 SoCs.</p>
<b>41a</b>	a wideband analog-to-digital converter (ADC) configured to digitize an input signal, wherein the input signal comprises a plurality of desired channels and a plurality of undesired channels; and	<p>The Accused Set Top Products include a wideband analog-to-digital converter (ADC) configured to digitize an input signal, wherein the input signal comprises a plurality of desired channels and a plurality of undesired channels as described below.</p> <p>Specifically, the Arris AX013ANM, depicted in the following annotated photograph, constitutes a cable television device as claimed.</p>



*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

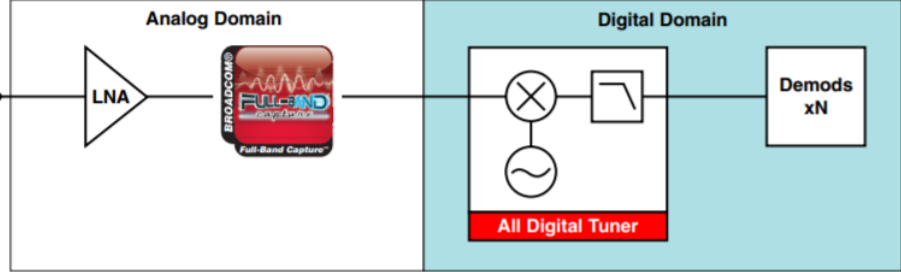
#	U.S. Patent No. 11,381,866	Accused Products and Services
		 <p>The Arris AX013ANM has applicable circuitry and/or software modules constituting a wide-band ADC. The Arris AX013ANM digitally tunes and outputs television content using its applicable circuitry and/or software modules, for example applicable circuitry and/or software modules located in the Broadcom BCM33843 Full-Band Capture SoC, highlighted in red above. The</p>








*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>Arris AX013ANM has full band capture digital tuning technology and remote diagnostics that directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. The entire downstream spectrum includes a plurality of desired channels and a plurality of undesired channels.</p> <p>“The new BCM3384 DOCSIS®/Euro-DOCSIS™ 3.0 cable gateway SoC combines Broadcom's Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a custom, dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0. ... Broadcom’s new BCM33843 is pin compatible ... Broadcom is now sampling [as of Jan 08, 2013] the BCM3384 and BCM33843” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
41b	a plurality of digital down converters coupled to the wideband ADC, wherein each digital down converter, of the plurality of digital down converters, is operable to	The Accused Set Top Products include a plurality of digital down converters coupled to the wideband ADC, wherein each digital down converter, of the plurality of digital down converters, is operable to generate a digital channel output corresponding to each desired channel, of the plurality of desired channels, and wherein the cable TV device comprises a digital video recorder (DVR) as described below.

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
	<p>generate a digital channel output corresponding to each desired channel, of the plurality of desired channels, and wherein the cable TV device comprises a digital video recorder (DVR).</p>	<p>Specifically, the Arris AX013ANM has applicable circuitry and/or software modules constituting a plurality of digital down converters coupled to the wideband ADC. The Arris AX013ANM has applicable circuitry and/or software modules, for example including applicable circuitry and/or software modules located in the BCM33843 SoC, providing full band capture digital tuning technology that directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. On informed belief, at least this applicable circuitry and/or software modules of the Arris AX013ANM constitutes digital down converters operable to generate a digital channel output corresponding to each desired channel, of the plurality of desired channels. The Arris AX013ANM is a DVR that can record programming on its hard drive.</p> <p><b>Full-Band Capture Digital Tuner Architecture</b></p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.”</p> <p>(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p>

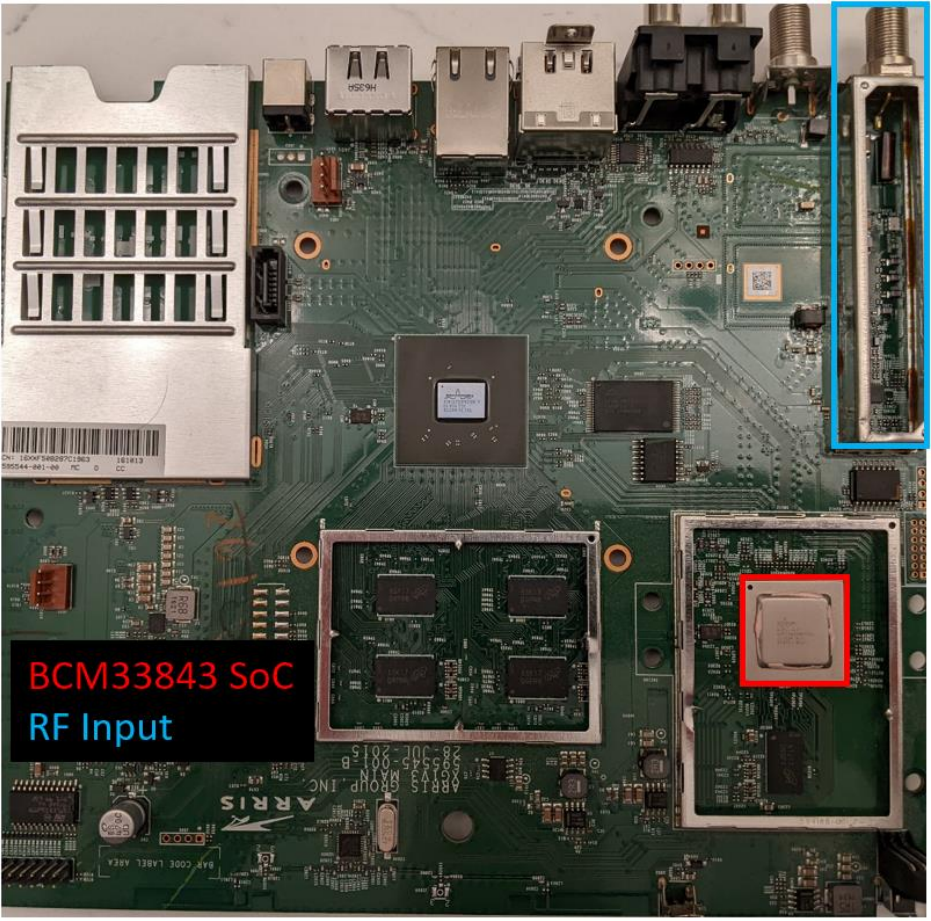
*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned and users can enjoy the experience of Broadcom's FastRTV™ fast channel change technology.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>   </p> <p>Details</p> <div><p>Receiver Capabilities</p><ul style="list-style-type: none"><li>✓ HD Capable</li><li>✓ Up to 6 simultaneous DVR recordings</li><li>✓ Up to 1000 hours of SD recording</li><li>✓ Up to 500 hours of HD recording</li></ul><p><b>Note:</b> Estimated storage will vary with a mix of HD and SD recordings.</p></div> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the</p>

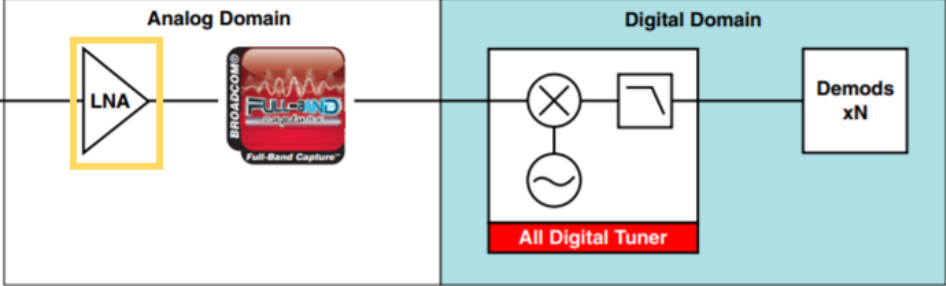
*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
42pre	42. The cable TV device of claim 41, wherein:	See 41pre.
42a	the cable TV device comprises a cable network connector, and	<p>The cable TV device comprises a cable network connector as described below.</p> <p>Specifically, the Arris AX013ANM has a cable network connector, shown in blue in the following annotated photograph.</p>

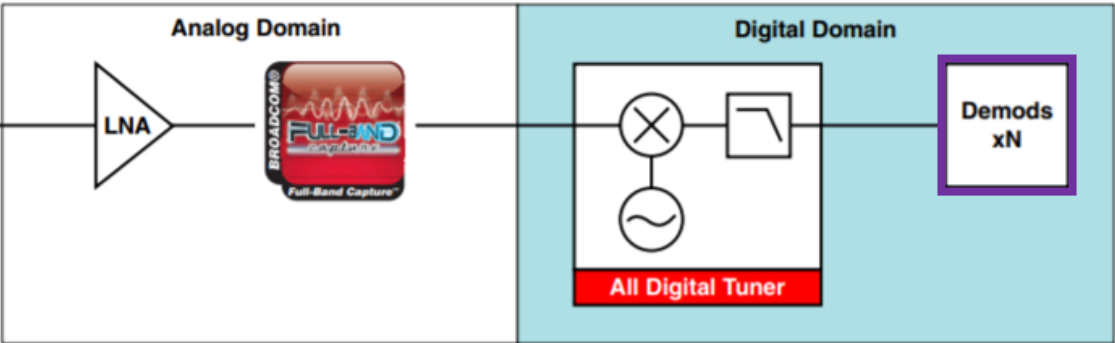
*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		 <p>BCM33843 SoC RF Input</p>
42b	the input signal is operably communicated from the cable network connector to the wideband ADC via at least one of an analog amplifier and an analog filter.	<p>The input signal is operably communicated from the cable network connector to the wideband ADC via at least one of an analog amplifier and an analog filter as described below.</p> <p>Specifically, the Arris AX013ANM has applicable circuitry and/or software modules constituting at least an analog amplifier. For example, the Arris AX013ANM, via applicable circuitry</p>

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p>and/or software modules of its BCM33843 SoC, has at least an analog amplifier, highlighted in yellow below.</p> <p><b>Full-Band Capture Digital Tuner Architecture</b></p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
47	47. The cable TV device of claim 41, wherein: each digital down converter comprises a digital demodulator operable to demodulate a desired channel, of the plurality of desired channels, to provide a demodulated channel as the digital channel output.	<p>Each digital down converter comprises a digital demodulator operable to demodulate a desired channel, of the plurality of desired channels, to provide a demodulated channel as the digital channel output as described below.</p> <p>Specifically, the Arris AX013ANM has applicable circuitry and/or software modules constituting a plurality of demodulators. For example, the Arris AX013ANM, via applicable circuitry and/or software modules of its BCM33843 SoC, has a plurality of demodulators, highlighted in purple below. The demodulators demodulate the desired channels and provide the demodulated channel as the digital channel output.</p>

*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<p data-bbox="764 302 1524 334"><b>Full-Band Capture Digital Tuner Architecture</b></p>  <p data-bbox="726 708 1629 740">(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p data-bbox="726 789 1942 992">“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.”</p> <p data-bbox="726 1000 1488 1032">(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p data-bbox="726 1081 1942 1243">“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned and users can enjoy the experience of Broadcom's FastRTV™ fast channel change technology.”</p> <p data-bbox="726 1252 1488 1284">(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p data-bbox="726 1333 1942 1414">Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the</p>



*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)






#	U.S. Patent No. 11,381,866	Accused Products and Services
		claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
50	50. The cable TV device of claim 41, wherein: the plurality of digital down converters is operable to provide each digital channel output via a serial interface.	<p>The plurality of digital down converters are operable to provide each digital channel output via a serial interface as described below.</p> <p>More specifically, the Arris AX013ANM, using its applicable circuitry and/or software modules, outputs a digital datastream from a filter to one or more demodulators. On informed belief, the digital datastream is output via a serial interface. For example and on informed belief, the Arris AX013ANM, using applicable circuitry and/or software modules contained in the BCM33843 Full-Band Capture SoC, outputs the digital datastream from the filter (highlighted below in green) to the demodulators (highlighted below in purple) via a serial interface.</p> <div data-bbox="774 808 1719 1138"> <p style="text-align: center;"><b>Full-Band Capture Digital Tuner Architecture</b></p> </div> <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>



*Entropic Communications, LLC v. Cox Communications, Inc., et al.*  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
51	51. The cable TV device of claim 41, wherein: the plurality of desired channels comprises at least one cable broadcast channel.	<p>The plurality of desired channels comprises at least one cable broadcast channel as described below.</p> <p>Specifically, the Arris AX013ANM provides cable television services, including viewing and recording of desired television content. The plurality of desired channels includes at least this desired television content, which constitutes at least one cable broadcast channel.</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere. Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the 24 downstream channels.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned and users can enjoy the experience of Broadcom's FastRTV™ fast channel change technology.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.  
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,381,866	Accused Products and Services
		<div>Arris XG1v3 High Definition DVR Receiver</div> <div>Share or Print This Article</div> <div></div> <div>Details</div> <div></div> <div>Receiver Capabilities</div> <div><ul style="list-style-type: none"><li>✓ HD Capable</li><li>✓ Up to 6 simultaneous DVR recordings</li><li>✓ Up to 1000 hours of SD recording</li><li>✓ Up to 500 hours of HD recording</li></ul></div> <div>Note: Estimated storage will vary with a mix of HD and SD recordings.</div> <div>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</div> <div>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed method. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</div>